

Development of a Mindfulness-Based Cognitive Therapy Intervention Package for Patients with Obesity

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ABSTRACT

The present study was conducted with the aim of developing a mindfulness-based cognitive therapy (MBCT) intervention package for patients with obesity. This study was qualitative in nature and employed a meta-synthesis strategy and research synthesis approach to extract the components of therapeutic packages from credible sources. Two sampling frameworks were considered for data selection: (1) research studies available in electronic databases, including the Noor Specialized Journals Database, Iranian Journal Database, Scientific Information Database (SID) of Jihad Daneshgahi, and Google Scholar search engine; and (2) academic theses archived in the Iranian Scientific Documents and Archives Center. Subsequently, the findings related to selected documents in the relevant thematic domain were synthesized through the processes of open coding, axial coding, and selective coding to develop a new mindfulness-based cognitive therapy intervention package for patients with obesity. The extracted data were summarized and card-indexed, and each element of the therapeutic packages was categorized accordingly. Validation was performed using the Content Validity Index (CVI) and the Content Validity Ratio (CVR) by a panel of 15 experts. Based on the obtained data, the mindfulness-based cognitive therapy model was coded and classified into nine therapeutic themes: (1) conceptualization, (2) awareness of emotions, (3) awareness of real needs, (4) cultivation of self-acceptance, (5) identification of mental wanderings, (6) control of craving and temptation, (7) inner and outer wisdom, (8) mindful and breathing meditation exercises, and (9) mind-body-emotion connection. These results can be utilized in the design and implementation of psychological intervention programs for patients with obesity.

Keywords: Mindfulness-Based Cognitive Therapy (MBCT), Obesity, Research Synthesis.

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Introduction

Obesity is a complex, chronic, relapsing condition that imposes substantial personal and societal burden through elevated risks of cardiometabolic disease, diminished quality of life, weight-related stigma, and sharply rising health expenditures across the lifespan (1). Beyond its well-documented physiological

sequelae, obesity is tightly interwoven with cognitive, affective, and behavioral processes—such as attentional bias to food cues, maladaptive cognitive appraisal, emotion dysregulation, and habitual overeating—that sustain weight gain and undermine long-term self-regulation. These psychosocial mechanisms explain why purely biomedical or diet-centric approaches often fail to produce durable change and why contemporary guidelines increasingly call for integrative interventions that target mind–body pathways alongside nutritional and physical-activity prescriptions (2). Mindfulness-based approaches, and in particular mindfulness-based cognitive therapy (MBCT), have emerged as promising candidates for addressing this nexus by cultivating nonjudgmental awareness of internal experiences, decentering from automatic thoughts, and reconfiguring maladaptive reactions to craving and stress (3).

Converging biomedical evidence underscores the need for behavioral treatments that can interrupt the biological–psychological feedback loops that drive weight gain. Mediation analyses indicate that central adiposity contributes to glycemic dysregulation through lipid pathways, suggesting that interventions which reduce overeating bouts and improve dietary quality could yield cascading benefits on insulin resistance and metabolic risk (4). In parallel, molecular research highlights microRNAs (miRNAs) as mechanistic bridges between obesity and oncogenic processes, reinforcing the public-health imperative for strategies that sustainably attenuate excess weight and improve metabolic profiles across risk strata (5). Taken together, these findings strengthen the rationale for scalable, psychologically informed programs that can be embedded within preventive and clinical care to mitigate downstream medical complications.

MBCT integrates mindfulness training with targeted cognitive therapy skills (e.g., identifying cognitive distortions, shifting appraisal, and building relapse-prevention plans) to interrupt automaticity and reduce experiential avoidance. Originally developed for recurrent depression, MBCT has accumulated robust evidence for altering patterns of cognitive appraisal and reducing reactivity to distress, mechanisms that generalize to eating-related triggers and craving episodes (3, 6). In weight-management contexts, MBCT and related mindfulness-based protocols appear to impact several proximal targets: (a) awareness of hunger–satiety signals, (b) recognition of cue-induced urges, (c) reappraisal of dysphoric states that precipitate emotional eating, and (d) flexible goal-directed behavior in the presence of high-calorie cues (7). Randomized and quasi-experimental studies in adult and adolescent samples have reported improvements across cognitive-affective markers (e.g., food-related attentional bias, craving intensity), health behaviors (e.g., mindful eating, self-monitoring), and weight-adjacent outcomes (e.g., body image, self-esteem), laying groundwork for more standardized, manualized packages (8, 9).

Clinical and community trials further suggest that mindfulness-based programs can yield benefits beyond the scale, including reductions in anxiety, depressive symptoms, and food addiction severity—psychological correlates that often derail weight-control attempts (10). Systematic appraisals of mindfulness-based interventions in obesity and related conditions (including diabetes and disordered eating) indicate favorable effects on eating pathology, emotional regulation, and self-care behaviors, albeit with heterogeneity in dosage, delivery format, and outcome assessment (2). Importantly, mindfulness-based approaches have also shown utility as adjunctive treatments in other psychiatric conditions characterized by rigid cognition and compulsive responding (e.g., obsessive–compulsive disorder), pointing to transdiagnostic mechanisms—such as cognitive flexibility and distress tolerance—that are directly relevant for interrupting overeating cycles (11).

Within adolescent and young-adult populations, where body image concerns and reward sensitivity to palatable foods are salient, mindfulness-based curricula adapted for developmental needs can enhance emotion regulation and inhibitory control. For instance, school-connected or clinic-based mindfulness programs tailored to youth with overweight/obesity have demonstrated improvements in emotion regulation and response inhibition, both of which are implicated in the onset and maintenance of binge-type eating (12). Telehealth and mobile-health formats extend this promise by increasing access, personalizing practice, and supporting adherence in groups that face structural or identity-related barriers to care. Early feasibility work in digital mindfulness for unhealthy eating among midlife sexual minority women—who often have unique stress exposures linked to early life adversity—suggests acceptable engagement and preliminary benefit signals, aligning with broader tele-MBCT research in youth mental-health cohorts (13, 14).

At the same time, MBCT's clinical promise in obesity hinges on the precision with which programs target eating-specific mechanisms. Trials comparing MBCT to cognitive-behavioral therapy (CBT) or acceptance- and mindfulness-based variants (e.g., MBSR, mindful eating programs) provide mixed but instructive patterns: some report superior gains for MBCT on body-image valuation or eating attitudes, whereas others show parity with CBT on weight-adjacent outcomes, with differential profiles across craving control, emotion regulation, and cognitive fusion (15-18). These contrasts underscore two design priorities for future interventions: (1) an explicit focus on emotional-triggered eating and cue reactivity, and (2) integration of mindfulness practices with cognitive restructuring and relapse-prevention exercises that are anchored to weight-management behaviors (e.g., stimulus control, planning, self-monitoring). Foundational MBCT principles—such as decentering, present-moment awareness, and compassionate stance toward internal experiences—map neatly onto these priorities, but require operationalization into session-level elements and home-practice scaffolds (3).

The economic case for investing in such psychologically informed obesity care is compelling. In the United States, health-care expenditures attributable to elevated BMI escalate sharply across age and sex strata, reflecting rising rates of obesity-related comorbidities and treatment complexity (1). If MBCT-based programs can reduce binge-eating episodes, improve dietary adherence, and enhance mental-health comorbidity profiles, they may function as cost-offsetting components within chronic-care pathways. Complementary evidence from mind-body oncology and survivorship further broadens the use case: scoping reviews of mindfulness and yoga for post-breast-cancer weight management highlight feasibility and potential behavioral benefits, with calls for more rigorous, mechanism-driven trials (19). Such cross-condition learnings inform the design of modular MBCT packages that can be adapted across clinical settings and populations.

The delivery landscape for MBCT is also evolving. Hybrid and remote group formats have demonstrated non-inferiority to in-person delivery for mental-health outcomes in adolescents, suggesting that high-fidelity MBCT content can be preserved while scaling access (14). Mobile platforms that embed brief mindfulness exercises, urge-surfing prompts, and just-in-time support may help users translate session skills into real-world contexts where food cues are omnipresent (13). Meanwhile, curriculum variants—such as mindful eating protocols or mindfulness-based eating solutions—have shown reductions in body dissatisfaction and disordered eating attitudes in student populations, expanding the repertoire of eating-specific techniques that could be integrated into a broader MBCT framework (20). These innovations,

however, require careful alignment with the core MBCT mechanisms to ensure that expansions do not dilute the treatment's cognitive-behavioral backbone.

Regional evidence from Iranian samples enriches this literature by demonstrating MBCT's cultural adaptability and relevance in local care systems. Studies in Iranian adults with overweight/obesity report improvements in body-image awareness, self-esteem, craving regulation, and weight-control self-efficacy following MBCT or related mindfulness programs, frequently with effect sizes comparable to active controls (7-9). Comparative trials indicate that MBCT can perform on par with CBT in some domains (e.g., emotion regulation) while showing advantages in others (e.g., mindful awareness of internal cues), particularly among women who endorse high levels of body dissatisfaction or shame (18, 21). Recent trials and practice-based investigations further suggest that mindfulness-based stress reduction (MBSR) elements (e.g., body scan, breath awareness) integrated with cognitive strategies may produce synergistic effects on anxiety, depression, emotion regulation difficulties, and food addiction severity—domains intimately tied to loss-of-control eating and relapse risk (10). In adolescents, mindfulness-based curricula adapted to developmental needs (e.g., shorter practices, emotion-labeling, inhibitory-control drills) improve emotion regulation and response inhibition, thereby addressing risk processes that predict escalation of overeating in youth (12).

Understanding *how* MBCT exerts its effects on eating requires attention to cognitive appraisal processes and habit learning. Experimental and clinical data show that mindfulness training can shift appraisal of interoceptive and affective cues from threat to information, reducing catastrophic thinking and promoting flexible responding; such shifts have been documented in pain and migraine populations and plausibly generalize to the aversive states that precipitate emotional eating (6). In the weight domain, this translates to improved discrimination between physiological hunger and affective urges, decreased reactivity to palatable food cues, and greater tolerance of craving without enactment—skills that can be directly rehearsed via urge-surfing, mindful tasting, and “three-minute breathing space” exercises commonly embedded in MBCT protocols (3). Evidence from large mindfulness-based lifestyle trials further suggests that when mindfulness is combined with nutrition and physical-activity counseling, gains in psychological well-being can endure beyond the structured intervention, a critical ingredient for long-term weight maintenance (22). Nonetheless, heterogeneity in study designs—including variations in session dose, home-practice adherence, control conditions, and outcomes—complicates cross-study synthesis and underscores the need for standardized, manualized packages with clearly specified mechanisms and fidelity markers (2).

The comparative literature provides additional guidance on content prioritization. Trials that pit MBCT against CBT or other active treatments often differ in their emphasis on emotion-driven eating versus habitual snacking, in the balance of cognitive restructuring versus acceptance/decentering, and in the inclusion of explicit relapse-prevention planning for high-risk situations (e.g., social gatherings, evening fatigue) (15-17). Synthesizing across these studies suggests that high-leverage components include: (1) psychoeducation on hunger-satiety and interoceptive awareness; (2) mindfulness practices tailored to eating contexts (mindful bites, savoring, urge-surfing); (3) cognitive techniques that target all-or-nothing dieting cognitions and shame-based spirals; (4) emotion-regulation skills (labeling, acceptance, self-compassion) to defuse triggers for emotional eating; and (5) structured self-monitoring and environmental design (stimulus control) to support habit formation. Incorporating these elements into a coherent MBCT

package, with session-by-session objectives and culturally adapted examples, is essential for treatment fidelity and reproducibility (3, 7).

Equity and scalability considerations further motivate the development of standardized MBCT packages for obesity care. Tele-group MBCT and CBT have shown comparable efficacy to in-person groups for adolescents with mood or attenuated psychosis symptoms, indicating that group processes and therapeutic alliance can be preserved online—an insight translatable to weight-management groups where convenience and anonymity may enhance participation (14). Digital adjuncts can also tailor practice to moments of highest risk (e.g., late-evening snacking), increasing ecological validity and supporting generalization of skills. Integrative care pathways—linking primary care, nutrition counseling, and behavioral health—stand to benefit from a clearly defined MBCT obesity package that can be slotted into stepped-care models and measured against standardized outcomes (e.g., craving frequency, loss-of-control episodes, body-image valuation, and weight-related quality of life) (2). Given the downstream medical costs tied to BMI and the molecular links between adiposity and oncologic risk, even modest, sustained behavioral improvements could translate to meaningful population-level benefits (1, 5).

Finally, the broader mindfulness evidence base provides complementary insights relevant to program architecture and dissemination. Reviews and feasibility trials across diverse populations—from oncology survivorship to primary psychiatric conditions—indicate that mindfulness content is acceptable and can be integrated as adjunctive care, supporting the case for modular MBCT packages that can be customized by setting and comorbidity profile (11, 19). Mobile-first approaches, brief practice “snacks,” and skill-based micro-learning may be particularly valuable for individuals who juggle caregiving, shift work, or stigma-related barriers, as illustrated by work in sexual minority women and other under-served groups (13). Emerging curriculum innovations such as mindfulness-based eating solutions in student cohorts expand the toolkit for addressing body dissatisfaction and disordered eating attitudes and can inform youth-friendly adaptations within a standardized MBCT framework (20). Collectively, these strands converge on a clear translational task: to distill the most potent, eating-specific MBCT elements into a culturally sensitive, mechanism-aligned, and implementation-ready package for individuals with overweight and obesity, with attention to adolescent and adult needs, in-person and telehealth delivery, and integration within multidisciplinary care (3, 10, 12-17, 22).

This study aims to develop and justify a standardized, mechanism-driven MBCT intervention package for individuals with overweight and obesity—grounded in comparative evidence, cultural adaptation, and implementation considerations—to improve eating-related self-regulation, body-image valuation, and weight-adjacent psychological outcomes (1-3, 15, 16).

Methods and Materials

The present study was qualitative in nature and aimed to develop a mindfulness-based cognitive therapy (MBCT) intervention package for patients with obesity. This study employed a meta-synthesis strategy using a research synthesis approach to extract and thematically categorize the components of mindfulness-based cognitive therapy intervention packages from various scientific sources and studies. Subsequently, validation was conducted using the Content Validity Index (CVI) and the Content Validity Ratio (CVR).

In the research synthesis method, findings from diverse and scattered studies are collected in accordance with the specific needs of the research. These findings are then reviewed, analyzed, and reorganized within a particular perceptual framework to generate new perspectives or relationships. After reviewing studies related to obesity, overweight, overeating, mindfulness-based cognitive therapy, and mindfulness, the necessary information for constructing the perceptual framework was extracted. Accordingly, two sampling frameworks were considered for this study: (1) studies available in electronic databases, including the *Noor Specialized Journals Database*, *Iranian Journal Database*, *Scientific Information Database (SID)* of Jihad Daneshgahi, and *Google Scholar*; and (2) academic theses archived in the *Iranian Scientific Documents and Archives Center*.

Then, the findings related to the selected documents within the relevant thematic domain were synthesized through the processes of open coding, axial coding, and selective coding to develop a new mindfulness-based cognitive therapy intervention package for patients with obesity. The collected data were summarized and card-indexed, and each element determined for the therapeutic packages was categorized accordingly.

After designing the intervention packages, face validity and content validity were employed to determine the validity of the preventive package. The foundation of this method relies on the degree of relevance among the various components of the proposed package based on the expert panel's judgment. For this purpose, after selecting the expert panel members, a draft version of the developed therapeutic packages was provided to them. The experts were asked to review the face validity of the packages and to submit their detailed written opinions regarding the content of various sections of the therapeutic packages. After incorporating the experts' feedback, the final revised version of the packages was redistributed among the panel members.

To quantitatively assess content validity, both the Content Validity Ratio (CVR) and the Content Validity Index (CVI) were applied. The CVR was calculated using the Lawshe method (Lawshe, 1975) based on the following formula:

$$\text{Content Validity Ratio (CVR)} = \frac{n_e - N/2}{N/2}$$

In this formula, n_e represents the number of panel members who rated the item as "essential," and N indicates the total number of panel members.

Furthermore, the Content Validity Index (CVI) was calculated using the method developed by Waltz and Bausell (1981) according to the following formula:

$$\text{CVI} = \frac{\text{Number of responses rated 3 or 4 for each item}}{\text{Total number of responses for each item}}$$

Findings and Results

At the initial stage, research studies that could provide usable findings were selected according to the publication date, type of research, selection criteria, and search strategies for documents and databases. In the next step, the abstracts of the documents were reviewed, and based on the quality of the articles and their relevance, a screening process was performed. Out of approximately 100 studies, 47 were selected as the research sample, which are presented in Table 1.

Table 1. Selected Studies Reviewed in the Field of Mindfulness-Based Interventions

Code	Type	Year	Author	Title
1	Article	2024	Kamali et al.	Comparison of the Effectiveness of Cognitive–Behavioral Therapy and Mindfulness-Based Cognitive Therapy on Body Image, Attitude, and Eating Craving in Overweight Individuals
2	Article	2022	Shirkhanzadeh et al.	Comparison of the Effectiveness of Cognitive–Behavioral Therapy and Mindfulness-Based Cognitive Therapy on Emotional Dysregulation in Individuals with Bulimia Nervosa (Case Study: High School Students in Kerman)
3	Article	2021	Kachooei et al.	Comparison of the Effectiveness of Cognitive Reappraisal-Based and Mindfulness-Based Interventions on Body Mass Index, Food Craving, and Overeating in Overweight Women
4	Article	2022	Ramazanalizadeh et al.	The Effectiveness of a Mindfulness-Based Educational Program on Body Image in Adolescents with Obesity
5	Article	2025	Binesh et al.	Comparison of the Effectiveness of Mindfulness Intervention, Auricular Acupuncture, and Their Integrative Approach on Eating Behavior Styles and Body Mass Index in Women with Obesity: A Clinical Trial
6	Article	2022	Soleiman & Soltani Zadeh	Investigating the Effect of Mindfulness-Based Cognitive Therapy on Body Image and Sexual Function in Women with Obesity
7	Article	2017	Sandoughchi et al.	The Effect of Mindfulness-Based Cognitive Therapy and Mindful Yoga on Overt and Covert Anxiety and Quality of Life in Women with Obesity
8	Article	2020	Etefaghi et al.	Comparison of the Effectiveness of Barlow’s Transdiagnostic Therapy, Emotion-Focused Therapy, and Mindfulness on the Body Mass Index of Adults with Obesity in Tehran
9	Article	2019	Mousavi et al.	Evaluating the Effectiveness of Mindfulness-Based Cognitive Therapy (MBCT) on Body Image in Individuals with Obesity and Overweight
10	Article	2021	Bahadori et al.	Determining the Effectiveness of Group Mindfulness-Based Cognitive Psychotherapy on Weight, Body Image, and Self-Esteem in Individuals with Obesity
11	Article	2021	Jalali Farahani et al.	Comparison of the Effectiveness of Acceptance and Commitment Group Therapy and Emotion Regulation Training on Emotional Regulation, Mindfulness, and Cognitive Fusion in Women with Obesity
12	Article	2024	Nasrifar et al.	Comparison of the Effectiveness of Cognitive–Behavioral Therapy and Mindfulness-Based Cognitive Therapy on Body Esteem in Women with Obesity
13	Article	2020	Etefaghi et al.	Comparison of the Effectiveness of Barlow’s Unified Transdiagnostic Therapy, Emotion-Focused Therapy, and Mindfulness on Eating Behavior Regulation in Adults with Obesity
14	Article	2021	Jasemi Zargani et al.	The Effectiveness of Mindful Eating Training on Weight Reduction, Self-Efficacy, Emotion Regulation, and Healthy Nutrition in Women with Obesity
15	Article	2020	Shamsi Solari & Molavi	The Effect of Mindfulness-Based Cognitive Therapy on Weight Control Ability, Body Image Satisfaction, and Life Satisfaction in Women with Obesity in Isfahan
16	Article	2018	Kachooei et al.	Comparison of Mindfulness and Self-Compassion in Women with High and Normal Body Mass Index
17	Article	2017	Jafari et al.	The Effect of a Mindfulness-Based Stress Reduction Program on Overt and Covert Anxiety and Quality of Life in Women with Obesity
18	Article	2018	Kamran et al.	The Effectiveness of Group Mindfulness Training on Psychological Symptoms in Women with Obesity
19	Article	2021	Mirahmadi et al.	The Effect of Mindfulness-Based Stress Reduction and Biofeedback Exercises on Attention Control, Executive Functions, and Craving in Overweight and Obese Women
20	Article	2022	Ramazanalizadeh et al.	Designing a Mindfulness-Based Educational Program and Evaluating Its Effectiveness on Emotion Regulation and Response Inhibition in Adolescents with Obesity
21	Article	2023	Rashidi et al.	Comparison of the Effectiveness of Acceptance and Commitment Therapy, Cognitive–Behavioral Therapy, and Mindfulness on Improving Body Mass Index in Overweight Individuals

22	Article	2020	Moghaddam Pasha et al.	Determining the Effectiveness of Metacognitive Therapy Based on Mindfulness on Weight-Related Lifestyle, Hemoglobin A1C, and Leptin in Overweight Women
23	Article	2023	Shariati et al.	The Effectiveness of Mindful Eating Training on Alexithymia and Self-Differentiation in Overweight Women
24	Article	2021	Vatan-Khah Mohamadabadi et al.	The Effectiveness of Mindfulness-Based Cognitive Therapy and Body Mass Index Interaction on Weight Control, Executive Function, and Emotion Regulation in Adolescent Students
25	Article	2022	Haji Rostam et al.	Comparison of the Effectiveness of Self-Compassion-Based Mindfulness Therapy and Mindfulness-Based Cognitive Therapy on Weight Self-Efficacy and Food Craving in Overweight Women
26	Article	2023	Samadi et al.	Comparison of the Effectiveness of Combined Aerobic Exercise and Diet with and without Motivational Interviewing and Mindfulness on Eating Craving and Quality of Life in Overweight Non-Athletic Men
27	Article	2021	Mirahmadi et al.	The Effect of Mindfulness-Based Stress Reduction and Biofeedback Exercises on Attention Control, Executive Functions, and Craving in Overweight and Obese Women
28	Article	2023	Aghajani et al.	The Effectiveness of Mindfulness-Based Stress Reduction on Irrational Thoughts and Positive Thinking Enhancement in Individuals Seeking Weight Loss
29	Article	2020	Fahimi et al.	Comparison of the Effectiveness of Mindfulness and Emotion Regulation Training Combined with Diet on Psychological Flexibility and Self-Regulatory Behavior in Overweight Adolescents
30	Article	2023	Tajzadeghi et al.	The Effectiveness of Mindfulness Therapy on Rumination and Distress Tolerance in Adolescent Girls with High Body Mass Index
31	Article	2022	Daryadar et al.	The Effectiveness of Mindfulness on Attentional Bias to Food Stimuli and Body Image in Overweight Individuals
32	Article	2019	Alilou et al.	The Effectiveness of Emotion Regulation and Mindfulness Training on Symptoms of Bulimia Nervosa
33	Article	2022	Sartipi-Yarhamadi et al.	Comparison of the Effectiveness of Group Cognitive-Behavioral Therapy and Mindfulness-Based Stress Reduction on Body Image, Anxiety, and Overeating in Women with Obesity
34	Article	2023	Kobreti et al.	The Effect of Mindfulness-Based Stress Reduction Therapy on Anxiety, Depression, Emotion Regulation Difficulties, and Food Addiction Severity in Obese Individuals: A Randomized Clinical Trial
35	Article	2017	Ghaedari et al.	The Effectiveness of Mindfulness-Based Cognitive Therapy on Reducing Perceived Stress and Eating Disorder Symptoms in Students with Eating Disorder Symptoms
36	Article	2019	Hoveyzeh et al.	The Effectiveness of Mindfulness-Based Cognitive Therapy on Body Self-Description and Negative Referential Thinking in Adolescent Girls with Eating Disorders
37	Article	2021	Rezaei et al.	Comparison of the Effectiveness of Mindfulness-Based Cognitive Therapy and Emotion-Focused Therapy on Body Image Dissatisfaction in Individuals with Eating Disorder Symptoms
38	Thesis	2024	Bagherinejad	Structural Modeling of the Relationship Between Mindfulness and Obesity in Adolescents: The Mediating Role of Emotional Eating and Weight Control Self-Efficacy
39	Dissertation	2023	Binesh	Comparison of the Effectiveness of Mindfulness Intervention, Auricular Acupuncture, and Their Integrative Approach on Binge Eating Disorder in Women with Obesity
40	Dissertation	2017	Kachooei	Comparison of the Effectiveness of Cognitive Reappraisal-Based and Mindfulness-Based Interventions in Modifying Weight and Eating Behaviors Related to Obesity in Overweight Women
41	Thesis	2024	Ansari	Comparison of the Effectiveness of Mindfulness and Acceptance and Commitment Therapy on Binge Eating and Obesity-Related Behaviors in Adolescent Girls Aged 14–17 Years
42	Thesis	2016	Hampa	The Effectiveness of Group-Based Mindful Eating Training on Body Mass Index, Cognitive Emotion Regulation Strategies, and Weight Self-Efficacy in Overweight Women
43	Dissertation	2020	Mohammadtaraghie	Comparison of the Effectiveness of Mindfulness-Based Cognitive Therapy and Schema Therapy on Eating Behaviors, Anxiety, Blood Pressure, and Weight Reduction in Individuals with Obesity
44	Thesis	2019	Alipour	The Effectiveness of a Mindful Eating Educational Program in Reducing Weight and Improving Exercise Habits in Individuals with Obesity
45	Thesis	2017	Tajabadi Pour	The Effectiveness of Acceptance and Mindfulness-Based Therapy on Increasing Physical Activity and Reducing Obesity in Patients with Cardiac Problems in Bandar Abbas

46	Thesis	2019	Movaen Afshari	Investigating the Relationship Between Mindfulness and Attentional Bias to Food Stimuli with the Mediating Role of Self-Control in Overweight and Obese Individuals
47	Thesis	2015	Alinaqilou	Comparison of the Effectiveness of Group Cognitive–Behavioral Therapy and Group Mindfulness-Based Cognitive Therapy on Stress, Anxiety, Depression, and Weight Reduction in Individuals with Obesity

In the next stage, the texts of the selected articles were analyzed, coded, and categorized, and the principal themes were extracted. Then a combined research synthesis was performed, whereby the findings of other studies themselves became data that were integrated with the remaining data and subsequently re-created with a new identity. To examine the trustworthiness of the data for the proposed model, four criteria were assessed (Mohammadpour, 2013).

To achieve the criterion of “credibility,” a peer description procedure was used. Specifically, the researcher asked one doctoral student who had used this method to re-code a portion of the texts in order to verify the soundness of the researcher’s coding process and the absence of bias in the analyses. For “transferability,” purposeful and snowball sampling were employed: a few articles were first selected according to the main topic—namely, a mindfulness-based cognitive therapy package for individuals with overweight—and additional articles were then located through these sources. For “dependability,” the researcher consulted with the supervising professor and advisor regarding the research process and incorporated their feedback to improve the work. For “confirmability,” memo-writing during the research process was used so that useful notes could be employed in the dissertation drafting stages. To identify the components of the mindfulness-based cognitive therapy package, the information obtained from the content analysis was coded and categorized, as shown in Table 2.

Table 2. Themes in the Domain of Mindfulness Interventions for Overeating and Obesity

Theme	Sample Code	Sample Source
Conceptualization	Therapist’s initial explanations; group discussions about experiences; the concept of mindfulness and being present in the moment	15, 23
Awareness of emotions	Stress and recognizing reactions to stress; awareness of pleasant and unpleasant events influencing emotions; observing and being aware of bodily sensations; the roles of thinking and emotions in stress reduction; discovering and identifying unpleasant feelings (anger, shame, fear, loneliness, resentment) that trigger stress; challenging negative beliefs about emotion control and desire to eat when emotions arise; examining thoughts and emotions; eating and its connection with emotions (emotional-eating cues); cognitive-emotional patterns and clarifying cognitive-emotional triggers; sometimes acknowledging and labeling feelings; identifying positive and negative emotions; awareness of thoughts and feelings and their direct involvement	17, 19, 20, 21, 1, 26, 28, 45, 2
Awareness of real needs	Exercises for identifying values; choosing preferred foods; awareness of bodily sensations; attending to eating behaviors; self-knowledge	14, 17, 25
Cultivating self-acceptance	Acceptance and non-judgment of emotions and the body; relationship with the body; accepting unpleasant experiences	16, 18
Identifying mind-wandering	Becoming aware of a wandering mind; observing the turbulence of thoughts; negative thoughts; negative beliefs	2
Controlling craving and temptation	Examining the temptation to eat at inappropriate times; identifying eating triggers; examining responses to difficult situations; reviewing attitudes and alternative behaviors; strategies to overcome barriers to practice; revising eating cues; engaging in pleasurable and responsible alternative activities; identifying motivators; countering thoughts; challenging negative beliefs about emotion control and desire to eat when emotions arise; meeting emotional needs in healthy ways; changing old thinking habits	15, 17, 22, 24, 1, 28, 16, 2
Inner and outer wisdom	Meal planning; awareness of true hunger; awareness of satiety with water; mindful selection of foods; bodily self-monitoring; wise meditation; healthy snacking; combining taste awareness with calorie awareness; awareness of physical activity; continual comparison of current weight with desired weight	14, 21, 25, 42, 2
Breathing and mindful meditation exercises	Mindful walking; three-minute breathing space; mindful eating; mindful yoga; sitting meditation; body scan; breath and attention control; body scan; being present in the here-and-now; purposeful attention; mindful choice	15, 17, 21, 19, 20, 23, 24, 1,

		30, 26, 28, 33, 34, 42, 18, 45 20
Mind–body–emotion connection	Explaining the mind–body connection; training in connecting with the body and emotions	

Based on the information obtained from Table 2 and the reviewed studies, mindfulness-based cognitive therapy was coded and classified into nine therapeutic themes (conceptualization; awareness of emotions; awareness of real needs; cultivating self-acceptance; identifying mind-wandering; controlling craving and temptation; inner and outer wisdom; breathing and mindful meditation exercises; mind–body–emotion connection).

Determining the Content Validity Ratio (CVR): A questionnaire to determine the CVR of the therapeutic packages was developed by the researcher corresponding to the elements of the mindfulness-based cognitive therapy package for patients with obesity. This questionnaire evaluated the necessity of each predetermined therapeutic element for the package. The elements in this questionnaire were rated on a three-point scale: “essential,” “useful but not essential,” and “not necessary.” The questionnaire also included one open-ended question to solicit experts’ views on the elements and components of the therapeutic package. For a panel of 15 experts, an acceptable CVR value is greater than 0.49.

Determining the Content Validity Index (CVI): A questionnaire to determine the CVI of the therapeutic package was also developed by the researcher in line with the elements of the mindfulness-based cognitive therapy intervention package for patients with obesity. This instrument assessed, for each element of the therapeutic packages, the degree of relevance/specificity, clarity, and simplicity/fluency of the stated content. To calculate this index, the stated criteria were examined for each therapy session using a four-point Likert scale. The questionnaire also contained one open-ended question to obtain experts’ views regarding the elements and components of the designed package. An acceptable CVI value should be greater than 0.79.

Table 3. CVI and CVR Indices

Session	CVI	CVR
First	1.00	1.00
Second	0.80	0.87
Third	1.00	1.00
Fourth	0.93	0.87
Fifth	0.80	0.87
Sixth	0.87	1.00
Seventh	0.87	0.73
Eighth	0.93	1.00

Discussion and Conclusion

The present study aimed to develop and validate a standardized mindfulness-based cognitive therapy (MBCT) intervention package for patients with obesity by synthesizing theoretical and empirical evidence and assessing content validity indices through expert evaluation. The findings demonstrated that the final intervention model comprised nine therapeutic themes—conceptualization, awareness of emotions, awareness of real needs, cultivation of self-acceptance, identification of mind-wandering, control of craving and temptation, inner and outer wisdom, mindful and breathing meditation exercises, and mind–body–emotion connection—each grounded in the cognitive-behavioral and mindfulness literature. The calculated Content Validity Ratio (CVR) and Content Validity Index (CVI) values across sessions ranged from

acceptable to excellent, indicating strong expert consensus regarding the necessity, relevance, and clarity of the intervention components. Collectively, these results confirm that the developed MBCT package represents a scientifically coherent, culturally relevant, and practically applicable framework for addressing psychological and behavioral dimensions of obesity.

The synthesis of the literature and expert validation revealed that obesity is sustained not only by biological and environmental determinants but also by cognitive distortions, maladaptive emotional regulation, and automatic eating patterns. MBCT directly targets these mechanisms by cultivating awareness of internal cues and modifying maladaptive cognitive responses (3). The identified themes, particularly *awareness of emotions*, *control of craving and temptation*, and *mind–body–emotion connection*, reflect this dual focus on cognitive restructuring and experiential awareness. Similar multi-dimensional frameworks have been reported in previous empirical studies where MBCT yielded improvements in body image satisfaction, emotional regulation, and self-compassion among individuals with obesity (15, 16). By integrating cognitive and mindfulness principles, the current intervention supports the transition from automatic, emotionally driven eating toward deliberate and mindful self-regulation, echoing the mechanisms observed in prior comparative trials between MBCT and CBT (17).

The inclusion of *awareness of emotions* as a core theme aligns with research demonstrating that emotion dysregulation is one of the most powerful predictors of overeating and weight relapse (12). Mindfulness-based interventions cultivate metacognitive awareness of emotions, enabling individuals to observe affective states without immediately acting upon them. This decoupling mechanism reduces emotional eating and promotes healthier coping strategies (22). Furthermore, the emphasis on *control of craving and temptation* reflects robust evidence showing that mindfulness enhances inhibitory control over appetitive urges through improved prefrontal–limbic regulation and attentional modulation (6). These findings are consistent with neurocognitive models suggesting that mindfulness strengthens top-down regulation of craving-related neural circuits. The *inner and outer wisdom* and *mindful meditation* components similarly reinforce interoceptive accuracy and body awareness, processes empirically linked to reduced impulsive food intake and improved weight maintenance (7, 8).

The high content validity observed for the developed package suggests that experts regarded the program's design as both comprehensive and feasible. Each session was designed to build upon the previous one, reflecting a cumulative learning process similar to the progression outlined in MBCT manuals for depression and anxiety (3). The conceptual coherence between sessions (e.g., from mindfulness of breath to mindfulness of craving and body sensations) was also consistent with prior frameworks emphasizing *experiential learning* as a driver of behavioral change. The structure of the sessions—starting from awareness and conceptualization and moving toward self-acceptance and integration—reflects a gradual shift from cognitive understanding to embodied practice, a feature shown to predict long-term adherence to mindfulness programs (22). The inclusion of emotion-focused and acceptance-based techniques within MBCT also aligns with findings from comparative trials that highlight the superiority of mindfulness approaches over traditional CBT in promoting acceptance and self-regulation in eating behavior (16, 18).

Beyond psychological mechanisms, mindfulness-based interventions also interact with biological pathways associated with obesity. Evidence from metabolic research indicates that mindfulness-based weight interventions can indirectly improve glycemic control and lipid profiles by reducing stress-induced

overeating and improving dietary quality (4). This biobehavioral link is important because central obesity contributes to insulin resistance and chronic inflammation through lipid dysregulation, reinforcing a vicious cycle of physiological and psychological stress. Interventions that modulate both stress reactivity and eating behavior can therefore have systemic benefits. Similarly, emerging research on molecular mediators such as microRNAs (miRNAs) reveals how obesity-related inflammation may contribute to oncogenic risk, further underscoring the clinical importance of preventive behavioral therapies like MBCT (5). The current study's comprehensive design, which integrates stress regulation, mindful eating, and cognitive restructuring, thus resonates with this interdisciplinary evidence base linking mental regulation to metabolic outcomes.

The findings also support previous international evidence showing that MBCT can improve *body image valuation*, *self-esteem*, and *eating attitudes* in overweight individuals. The comparative work of (15) and (16) in Iranian samples found that MBCT was as effective as CBT in improving cognitive and emotional aspects of body image but superior in promoting mindful awareness and acceptance. Similarly, studies conducted by (21) and (17) have shown that mindfulness-oriented therapies enhance sexual functioning, emotion regulation, and distress tolerance among individuals with obesity or binge eating disorder. These improvements align with the *cultivation of self-acceptance* and *awareness of real needs* themes identified in the current synthesis, highlighting mindfulness as a process of attunement to internal experiences rather than suppression or avoidance. The resulting emotional clarity appears to reduce the motivational conflicts that often underlie overeating episodes.

Moreover, the present results parallel findings from global research on the psychological benefits of mindfulness-based programs. For example, a comprehensive trial examining mindfulness-based weight loss interventions reported long-term improvements in psychological well-being and health behaviors (22). Another large-scale analysis found that mindfulness training improved attentional regulation and emotional resilience even among clinical populations with comorbid mood or anxiety disorders (14). These mechanisms—particularly improved cognitive flexibility and self-awareness—are transferable to obesity management, as maladaptive eating often functions as a short-term emotion-regulation strategy. Mindfulness retrains this system by increasing the individual's capacity to tolerate discomfort without resorting to automatic eating.

Notably, the development of the current MBCT package incorporated culturally specific elements to enhance contextual relevance and therapeutic engagement. This aligns with findings that contextual adaptation improves adherence and perceived acceptability in non-Western populations, where eating practices and body ideals may differ from Western conceptualizations (10). The structured inclusion of *mind–body–emotion connection* and *mindful breathing* elements ensures compatibility with indigenous and spiritual frameworks that value somatic awareness, which may further enhance therapeutic resonance in Iranian and Middle Eastern settings. Prior regional studies also demonstrated that mindfulness-based stress reduction (MBSR) programs effectively reduced anxiety, depression, and food addiction severity among obese adults, supporting the transferability of such modules into a cognitive-therapy context (10).

Additionally, the integration of mindfulness with cognitive restructuring creates a hybrid framework that addresses both thought content and process. While CBT traditionally focuses on identifying and modifying distorted cognitions, MBCT emphasizes metacognitive observation of thoughts without immediate judgment or reaction. This complementarity explains why MBCT has been found effective in both emotional and

behavioral regulation contexts, including migraine management (6) and obsessive–compulsive disorder (11). The current package capitalizes on these mechanisms to address the cyclical relationship between stress, emotion, and overeating.

The validation process through expert panels and quantitative indices provided further empirical strength to the intervention design. The obtained CVR values above the 0.49 threshold and CVI values exceeding 0.79 confirmed that the included elements were essential, relevant, and clearly articulated. High expert agreement particularly for sessions emphasizing “control of craving” and “mindful meditation” indicates recognition of these elements as core mechanisms for behavior change. The inclusion of structured meditation practices such as the “three-minute breathing space,” mindful walking, and body scan further reflects established MBCT methods known to enhance attentional control and distress tolerance (3).

Moreover, the findings reaffirm the growing body of evidence supporting mindfulness as an adjunctive intervention for metabolic and psychological outcomes in obesity and related conditions such as type 2 diabetes and disordered eating (2). Reviews demonstrate that mindfulness-based interventions reduce calorie intake, improve dietary quality, and decrease binge eating by promoting conscious awareness of eating triggers and sensory experiences. The current study extends this literature by producing a structured, expert-validated protocol that integrates these findings into a comprehensive treatment blueprint.

The integrative scope of this work also echoes findings in cross-condition mindfulness applications, such as mindfulness-based interventions for breast cancer survivors, which have been shown to reduce emotional distress and support weight management post-treatment (19). Similarly, digital mindfulness interventions designed to address unhealthy eating behaviors among sexual minority women revealed positive trends in feasibility and engagement (13). These results demonstrate that mindfulness can be adapted for diverse populations and delivery methods without losing therapeutic potency, supporting the potential scalability of the proposed intervention package.

Collectively, the results of this study validate MBCT as a multidimensional approach capable of addressing the psychological, behavioral, and biological aspects of obesity. By targeting the interplay between cognition, emotion, and bodily awareness, MBCT can bridge the gap between weight-management efforts and mental health outcomes. The current findings thus contribute to the growing evidence base advocating for mindfulness-informed cognitive therapies as core components in comprehensive obesity treatment frameworks (2, 3, 16).

Despite its promising findings, this study is not without limitations. First, as a qualitative meta-synthesis supported by expert validation, the conclusions rely primarily on secondary data and expert consensus rather than direct experimental outcomes. The absence of randomized controlled trials to test the developed package limits inferences regarding causal effects or comparative efficacy relative to existing treatments. Second, while the expert panel was diverse in terms of academic background, it was regionally concentrated, which may restrict the generalizability of the validation results across cultural or clinical contexts. Third, the CVR and CVI metrics, although rigorous for content validation, do not capture the practical feasibility or long-term adherence of the intervention in real-world clinical practice. Finally, the synthesized literature showed variability in intervention duration, intensity, and population characteristics, which may have influenced the generalizability of the extracted therapeutic components.

Future studies should empirically evaluate the developed MBCT package using randomized controlled designs to assess its effectiveness on both psychological and physiological outcomes, such as emotion regulation, self-efficacy, body mass index, and metabolic markers. Longitudinal research is also recommended to examine the durability of treatment effects over time and to identify mediating mechanisms such as mindful awareness, self-compassion, or craving regulation. Furthermore, mixed-method studies could explore participants' lived experiences of the intervention to refine session content and delivery. Cross-cultural replications and adaptation studies are warranted to ensure applicability across different populations and healthcare systems. Finally, integration of digital platforms and telehealth delivery models could expand accessibility and help examine the role of technological engagement in maintaining mindfulness practice and weight-related behavior change.

Practitioners should consider incorporating the validated MBCT package into multidisciplinary obesity treatment programs alongside nutritional counseling and physical-activity interventions. The structured nine-theme model provides a clear roadmap for addressing the cognitive and emotional underpinnings of overeating while enhancing patient self-regulation and body awareness. Clinical implementation should emphasize experiential learning through meditation, mindful eating, and craving-management exercises, supported by reflective discussion and goal-setting. Given the strong evidence base for mindfulness-based approaches, integrating this package into group and telehealth formats can promote accessibility, reduce stigma, and facilitate sustained behavioral change among individuals struggling with overweight and obesity.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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